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## RETHINKING EMPIRICISM AND MATERIALISM: THE REVISIONIST VIEW

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**Abstract.** *There is an enduring story about empiricism, which runs as follows: from Locke onwards to Carnap, empiricism is the doctrine in which raw sense-data are received through the passive mechanism of perception; experience is the effect produced by external reality on the mind or ‘receptors’. Empiricism on this view is the ‘handmaiden’ of experimental natural science, seeking to redefine philosophy and its methods in conformity with the results of modern science. Secondly, there is a story about materialism, popularized initially by Marx and Engels and later restated as standard, ‘textbook’ history of philosophy in the English-speaking world. It portrays materialism as explicitly mechanistic, seeking to reduce the world of qualities, sensations, and purposive behaviour to a quantitative, usually deterministic physical scheme. Building on some recent scholarship, I aim to articulate the contrarian view according to which neither of these stories is true. On the contrary, empiricism turns out to be less ‘science-friendly’ and more concerned with moral matters; materialism reveals itself to be, in at least a large number of cases, a ‘vital’, anti-mechanistic doctrine which focuses on the unique properties of organic beings. This revision of two key philosophical episodes should reveal that our history of early modern philosophy is dependent to a great extent on ‘special interests’, whether positivistic or Kantian, and by extension lead us to rethink the relation and distinction between ‘science’ and ‘philosophy’ in this period.*

**Keywords:** revision of empiricism, revision of materialism, science and philosophy, early modern thought

There is an enduring and influential story about empiricism, popularized in the early twentieth century by philosophers like A.J. Ayer and Bertrand Russell, and targeted just as strongly by other philosophers such as Edmund Husserl. The story runs as follows: from Locke onwards to Carnap, empiricism is the doctrine in which raw sense-data are received through the passive mechanism of perception; experience is the effect produced by external reality on the mind or ‘receptors’.<sup>1</sup> By extension, empiricism is the ‘handmaiden’ of experimental natural science, seeking to redefine philosophy and its methods in conformity with the results of modern science. Secondly, there is an equally enduring story about materialism, popularized initially by Marx and Engels and later restated as standard, ‘textbook’ history of philosophy in the English-speaking world to this day. It portrays

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<sup>1</sup>Taylor (1964), p. 92. See also Nagel (2006).

materialism as explicitly *mechanistic*, seeking to reduce the world of qualities, sensations, and purposive behaviour to a quantitative, usually deterministic physical scheme. Building on some recent scholarship, I aim to articulate the contrarian view according to which neither of these stories is true. On the contrary, empiricism turns out to be less ‘science-friendly’ and more concerned with moral matters; materialism reveals itself to be, in at least a large number of cases, a ‘vital’, *anti-mechanistic* doctrine which focuses on the unique properties of organic beings.

In what follows I take up, piecemeal, some well-known cases or representative ‘samples’ of what we think of as ‘canonical’ empiricism and materialism – in order to present a contrarian view of the canon. Not by suggesting, as people intelligently do, that it should be broadened or widened, by including different kinds of figures, narratives or practices.<sup>2</sup> But rather, by suggesting that the canonical figures did not quite think what we thought they thought, or at least what we often hear they thought. My main revisionary points would be, first, that empiricism is not a sense-data theory or the handmaiden of science but a *moral* theory, and, second, that materialism is not ‘mechanistic’ but in several significant cases biologicistic or indeed, *vitalistic*. Obviously one might respond with suspicion at this point: notably because some of this revision also affects the standard distinction between empiricism and rationalism, so important not just in our teaching modern philosophy but in our understanding of basic philosophical positions (in the sense that Plato is said to provide anti-empiricist arguments, or that Hegel is a particularly pure form of rationalist). We are accustomed to use ‘empiricism’ and ‘rationalism’ not just as constructs or suggested historico-theoretical categories, but as proper ways of describing thinkers like Locke-Berkeley-Hume versus Descartes-Spinoza-Leibniz, proper ways of distinguishing between two epistemologies and two metaphysics, each with their weaknesses, which are ultimately resolved in a grand synthesis with Kant, who is a transcendental idealist and an empirical realist. This view goes back at least as far as Friedrich Lange’s *History of Materialism* in the 19<sup>th</sup> century; it is represented today by Jonathan Bennett (as recently as his *Learning from Six Philosophers*, 2001), and still predominates in most early modern philosophy textbooks.<sup>3</sup>

If there is something wrong with how the terms ‘empiricism’ and ‘materialism’ are used as descriptors of historical phases of philosophy, and the remedy isn’t just to nominalistically dissolve categories in order to focus on specific, incredibly minute facts or sentences, then what does it mean, or did it mean, to be an empiricist, or a materialist?

## 1. Empiricism in the history of modern philosophy and a revised view

One might speak of a received view or a mainstream view of empiricism, which is the following: a doctrine about knowledge as founded on sense-data impacting on a passive, blank slate or *tabula rasa* – and by extension, about the construction of scientific theories. This view may exist, e.g. in the twentieth century, notably with Russell and Carnap (who extended it to mean a theory – indeed, *the* theory – about the genesis of scientific statements through a

<sup>2</sup> I have tried to pursue the latter kind of ‘canon-extending’ project in my dissertation (Wolfe [2006]), where I focus on the English deist and disciple of Locke, Anthony Collins in order to show how his version of determinism significantly changes the picture we should have of this ‘theory’ in early modern philosophy; see also Wolfe (2007).

<sup>3</sup> E.g. Thomson (2002) or Ariew and Watkins, eds. (2000), both of which present the choice in seventeenth and early eighteenth century philosophy as being one between rationalism and empiricism, each of which have their aporias, which will be resolved by Kant. Similarly, Markie (2008) – an entry in a major reference source – begins by stating, “The dispute between rationalism and empiricism concerns the extent to which we are dependent upon sense experience in our effort to gain knowledge.”

process of deduction beginning with sense-data<sup>4</sup>), but neither of the canonical empiricist philosophers, Locke or Hume, held it. Indeed, the idea that this view belongs to a ‘school’ known as the British Empiricists has met with its own challenges. In recent years, several important scholars, including Michael Ayers and David Norton, have picked apart the label ‘British empiricism’. The only true empiricist, it seems, in the sense of a thinker who holds that *nihil est in intellectu quod non fuerit in sensu*, is a Continental thinker, Pierre Gassendi; there is almost no continuity of ideas or reading between Locke, Berkeley and Hume (instead, they read Gassendi, Malebranche, and Bayle); as to the inherent ‘Britishness’ of this label, it seems that Locke is the only English thinker therein (Berkeley is Irish, Hume Scottish).<sup>5</sup> Jonathan Rée has suggested that the idea of British empiricism, which goes back to Reid and Kant, became so popular because it was claimed to be a ‘national’ tradition for Britain; but if we think of the Cambridge Platonists, this tradition could just as well be idealism.<sup>6</sup>

However, my reasons for being a contrarian or revisionist about ‘British empiricism’ are not purely contextual ones involving affinity groups or chains of influence. For one could always reject that line of argument and declare ‘no matter what Locke or Hume studied, which Jesuit manual influenced them, whether Locke formulated the first draft of his thoughts on how we are hedonistically determined by the pursuit of pleasure and the avoidance of pain while under Gassendist influence in Montpellier in 1676; what counts is the core of the philosophy itself, and it is clear that this philosophy declares that knowledge begins in sense-experience...’. Instead, I want to point out that our heavily *epistemological* reading of these canonical texts might be slanted. If we want to do any justice to what empiricism might have meant, we would have to extricate ourselves from what Knud Haakonssen recently termed the ‘epistemological paradigm’, which sees philosophy as essentially concerned with the justification of beliefs and judgements; it understands such justification in terms of events, whether perceptive or inferential, in the mind – or, as if in the mind – of the individual person; and it tends to apply this idea of epistemological justification as the criterion for what is properly included in the discipline of philosophy.<sup>7</sup>

In a nutshell, careful investigation of some of these ‘founding texts’ would reveal that what is epistemological and what is moral are not separated the way we might imagine. Let’s turn to the texts under consideration.

To historians and philosophers of science, one of the single most famous passages in Locke’s *Essay* is in the Epistle to the Reader:

I shall always have the satisfaction to have aimed sincerely at truth and usefulness, though in one of the meanest ways. The commonwealth of learning is not at this time without master-builders, whose mighty designs in advancing the sciences, will leave lasting monuments to the admiration of posterity; but every one must not hope to be a Boyle, or a

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<sup>4</sup> In addition to the historical problems with this ‘sense-data’ picture of empiricism, it also suffers from celebrated philosophical problems, diagnosed at least as far back as Quine’s ‘two dogmas’, which did not target empiricism as a whole but rather the Carnapian version; and Quine’s anti-foundationalism (expressed in his fondness for Neurath’s image of the mariner who has to rebuild his boat while afloat on it; Quine [1969], pp. 82-84) is precisely in synch with the Lockean denial that we have access to any ‘essence’ of nature, its laws or kinds.

<sup>5</sup> See Norton (1981), pp. 334, 341; Ayers (1991), vol. 1, p. 15; (1998), p. 1019. Ayers already challenges the idea of ‘the rationalist’ as opposed to ‘the empiricist’ in his (1968), p. 56f. Ishiguro (1986) has also argued that the distinction between rationalism and empiricism is unhelpful in understanding Leibniz and Hume on causation. Auroux (1974) argues that the categories of rationalism and empiricism are not adequate to explain a thinker like Condillac.

<sup>6</sup> Point made by Rée (1997), p. 44.

<sup>7</sup> Haakonssen (2006).

Sydenham; and in an age that produces such masters, as the great — Huygenius, and the incomparable Mr. Newton, with some others of that strain; *it is ambition enough to be employed as an under-labourer in clearing the ground a little, and removing some of the rubbish that lies in the way to knowledge* (emphasis mine).<sup>8</sup>

The ‘under-labourer’ passage has had an enormous impact on how Locke is viewed. For it seems to define the empiricist project as an adjacent, indeed subaltern project to the modern corpuscular reductive project (although the extent to which Boyle and Sydenham can be fit into the same programmatic box is a debated one). On this view, Locke will treat the world of ideas as these great men treated the world of natural objects.<sup>9</sup>

But let’s turn to another passage, also in the Epistle to the Reader, which is less well-known to scientifically/ontologically/epistemologically inclined readers of Locke.

*Were it fit to trouble thee with the history of this Essay, I should tell thee, that five or six friends meeting at my chamber, and discoursing on a subject very remote from this, found themselves quickly at a stand, by the difficulties that rose on every side.* After we had a while puzzled ourselves, without coming any nearer a resolution of those doubts which perplexed us, it came into my thoughts, that we took a wrong course; and that before we set ourselves upon inquiries of that nature, it was necessary to examine our own abilities, and see what objects our understandings were, or were not, fitted to deal with (emphasis mine).<sup>10</sup>

What’s the secret here – the “remote subject” on which “five or six friends meeting at [Locke’s] chamber,” discoursed? A copy of the *Essay* owned by one of these five or six friends, James Tyrrell, bears in the margin, at this spot, the words “*morality and revealed religion*”<sup>11</sup> ... In other words, the project of the *Essay* has very little to do with empiricist epistemology and a lot to do with practical matters. Nor is it an ontology, which is why Locke often says that the relevant area of inquiry for him is not the “depths of the ocean of Being” but rather “matters concerning our conduct”; “Our Business here is not to know all things, but those which concern our Conduct” (*Essay*, I.i.6).

Or, in a draft of a letter to Tyrrell, “my business was only to show whence men had moral ideas, and what they were . . .”<sup>12</sup> – and their limits. The ‘moral’ Locke is also the proto-

<sup>8</sup> Locke (1975), p. 9.

<sup>9</sup> Thus Laudan describes Locke’s epistemology as that of a “life-long scientist” (Laudan [1981], p. 54). Gaukroger (2007) notes that the underlabourer figure is almost a trope in the works of the period, and quotes Boyle, who is willing to “not only be an Underbuilder, but ev’n dig in the Quarries for Materials towards so useful a Structure, as a solid body of Natural Philosophy, than not to do something towards the erection of it.”: *Certain physiological essays and other tracts* (London, 1669), p. 18.

<sup>10</sup> Locke (1975), p. 7.

<sup>11</sup> Cranston (1957/1985), pp. 140.141. The manuscript of the *Essay* with Tyrrell’s marginal annotations is now in the British Museum. Note that Tyrrell’s account has been challenged, in a rather tortuous alternate account of the genesis of the *Essay*, in a series of essays by Patrick Romanell (Romanell 1984, esp. 148-149, and 203, n. 66). It may well be that Tyrrell misremembered the meeting of Locke’s friends. But Romanell’s main claim – that the key issue, the “remote subject,” was medicine, and that medicine structures all of Locke’s thought – is extremely implausible, at best; his secondary claim, that Locke’s ‘historical, plain method’ derives from the idea of ‘medical histories’ (*ibid.*, 144-147, 192-203, n. 56) is at best a thin analogy or association of ideas, the evidence for which includes ‘facts’ such as Locke’s usage of the adjective ‘plain’ to describe Sydenham’s method of treating smallpox. For a more sophisticated version of the view that Locke’s empiricism is influenced by medicine, see Duchesneau (1973), 136f.

<sup>12</sup> Locke to Tyrrell, August 4<sup>th</sup> 1690, quoted by Cranston (1957/1985), pp. 334-335. The “Power” chapter closes with a similar comment: “my present purpose being only to enquire into the knowledge

critical Locke, that is, the one who wants to restrict our investigation to what we can know. Look back to the end of the second quotation: the goal is to “examine our own abilities, and see what objects our understandings were, or were not, fitted to deal with.” Not just a mapping out of the mind, but a taking stock of its abilities and limitations, so we don’t try and do something beyond our forces. Not ‘pre-critical’ but ‘proto-critical’! Indeed, when Kant distinguished between dogmatic and critical philosophy in the first of his lectures on logic in 1770, he named Locke as an example of the latter.<sup>13</sup> Locke’s biographer Maurice Cranston comments that “there is something alien to empiricism in Locke’s whole aim of determining *in advance* the limits of human knowledge.”<sup>14</sup>

Given the choice between these two hints on how to interpret Locke’s vast *Essay* – the ‘under-labourer’ and the ‘remote subject’ – without wanting to sound like a Straussian reader of texts who always has to privilege a hidden meaning, I think in this case the hint provided in the margins of Tyrrell’s copy of the *Essay* is more important than the piece of positivistic, Scientific Revolution propaganda. For Locke to say in print that he is just the under-labourer for people like Boyle, Huygens and Newton makes good sense in terms of public relations; his hint, without naming the issue, that the whole book revolves around the problem of morality and religion, says something more. Furthermore, the ‘under-labourer’ picture suggests a kind of naturalization of the mind which isn’t really part of Locke’s program (not that he rejects it out of hand): “I shall not at present meddle with the Physical consideration of the Mind” (*Essay*, I.i.2). The corpuscularian hypothesis about the nature of underlying reality is, Locke thinks, the best bet for a valid explanation, but it is not his business!<sup>15</sup>

One can contrast Locke on this issue with figures such as Toland or Hartley, who are materialists. For Toland, “Whatever be the Principle of Thinking in Animals, yet it cannot be perform’d but by the means of the Brain”; he explicitly says thought is a property of the brain.<sup>16</sup> Hartley’s more unwieldy theory has both a general materialist outlook (“By the mechanism of human actions I mean, that each action *results from the previous circumstances of body and mind*, in the same manner and with the same certainty as other effects do from their mechanical causes”) and a specifically ‘vibratory’ materialist account of mind: small vibrations (“vibrunticles”) are impressed in the solid filaments of the nerves by external objects; these sensations are transmitted by ætherial vibration to the infinitesimal particles that make up the substance of the brain. By their differences in degree, kind and place, these vibrations represent different primary sensations, or “simple ideas” in the brain, which can become complex ideas through associations with other chains of vibrations.<sup>17</sup>

If we take the example of another celebrated empiricist, Hume, what is the textbook, mainstream version and what the ‘revisionist’ version proposed here? Hume is, of course, an epistemological skeptic. For most people, especially historians and philosophers of science, the *Treatise of Human Nature* ends at Book I. Hume denies famously that there is nothing in any object, consider’d in itself, which can afford us a reason for drawing a conclusion beyond

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the Mind has of Things, by those *Ideas*, and Appearances, which *God* has fitted to receive from them” (§ 73).

<sup>13</sup> See Haakonssen (2006), p. 10 & n. 17.

<sup>14</sup> Cranston (1957/1985), p. 265.

<sup>15</sup> However, see Locke (1975), II.ii.2, vii.10, and viii.11 (bodies produce ideas in us by ‘impulses’). Metaphysically, corpuscularian explanations play a key role in Locke’s definition of qualities (i.e. solidity is a primary quality since it still exists at the corpuscular level); biologically, they play a key role in what he assumes would be a correct theory of generation, explaining both similarity of traits and the occasional appearance of ‘monsters’.

<sup>16</sup> Respectively, Toland (1704/1976), letter IV, § 7, p. 139 and Toland (1720), p. 15.

<sup>17</sup> Hartley (1749), I, p. 500; *ibid.*, pp. 13-16. See Guerlac (1977), p. 162; Yolton (1983), pp. 180-184; Smith (1987), p. 124.



it; That even after the observation of the frequent or constant conjunction of objects, we have no reason to draw any inference concerning any object beyond those of which we have had experience.<sup>18</sup>

and asserts that

all our reasonings concerning causes and effects are deriv'd from nothing but custom; and that belief is more properly an act of the sensitive, than of the cogitative part of our natures.<sup>19</sup>

The ultimate resolution for Hume, once philosophy has destroyed our access to the world, so that he “begins to fancy [himself] in the most deplorable condition imaginable, environ'd with the deepest darkness, utterly depriv'd of the use of every member and faculty,” is to return to the backgammon table:

I dine, I play a game of backgammon, I converse, and am merry with my friends ; and when ... I would return to these speculations, they appear so cold, and strain'd, and ridiculous, that I cannot find in my heart to enter into them any farther.<sup>20</sup>

In a nutshell, what looks like the dark night of epistemological skepticism and despair at the end of Book I – but which has also given us such rich philosophy of science in the 20<sup>th</sup> century! – is not Hume's final word, at all. The self and our relation, if not to the external world as such, but to others, returns with a vengeance in the moral analysis of book II: the passions, and sympathy (not to mention the analysis of justice in book III). This is how one returns to the backgammon table. Never does Hume deny that there is a unified self; in the section on personal identity of the *Treatise* he denies that when we look into ourselves, we can have an *impression* of the self. The bundle theory, or his ‘atomism’ in general, applies to the *elements of our mental processes*. Hume was the first – in the Appendix to the *Treatise* – to find this account of personal identity inadequate.<sup>21</sup>

In many ways Hume is a critic of empiricism: consider, notably, his inferentialism (“there is nothing in any object, consider'd in itself, which can afford us a reason for drawing a conclusion beyond it”), which is a rejection of the Myth of the Given. Similarly, far from being in any literal sense the ‘Newton of the moral sciences’ that he is often claimed to be, his type of argument is essentially moral and historical. As Dario Perinetti puts it, “Empirical generalizations, or as Hume calls them, ‘general rules’ or ‘maxims’, are essentially guiding principles influencing our judgment after the model of maxims found in the writings of moralists and historians of the period,”<sup>22</sup> rather than expressions of laws of nature or inductive scientific observations.

Similarly, thinking back to Locke, it seems odd for someone Russell or Charles Taylor would call an empiricist, to declare that we do not know things directly but only through the mediation of ideas (*Essay* IV.iv.3). Of course, if there is something essential in Locke which is alien to empiricism, and something in Hume which is also alien to (this picture of) empiricism, maybe it's our picture of empiricism that needs changing! Of course, this revision is not meant to cover all forms of early modern empiricism; so, for instance, the ‘experimental’ flavor we associate with this tradition is alive and well in the Royal Society version of the story, which may be the context in which an actual ‘philosophy of experiment’

<sup>18</sup> Hume (1739/2000), I.iii.12, p. 95.

<sup>19</sup> *Ibid.*, I.iv.1, p. 123.

<sup>20</sup> *Ibid.*, I.iv.7, “Conclusion of this book,” p. 175.

<sup>21</sup> Norton (1981), p. 339.

<sup>22</sup> Perinetti (2005), p. 16.

emerges, as in Robert Boyle's "There is a big difference betwixt the being able to make Experiments, and the being able to give a Philosophical Account of them"<sup>23</sup> or Bacon's "Founding a real model of the world . . . cannot be done without dissecting and anatomizing the world."<sup>24</sup> It is not to say, then, that empiricism was not concerned with experience, or specifically sense-experience, or the relation of the information we obtain therein to claims about nature and the world such as those made in natural philosophy; but rather, that as a philosophical project empiricism was much more of a 'human', 'moral', 'embedded' science or intellectual venture, than it was an attempt to produce an epistemology that would do for the world of the mind what a Newton did for the world of nature.

What of materialism?

## 2. Materialism and the official story

Here is a story, or perhaps *the* (official) story about materialism. In the late nineteenth century, it was told thus by Engels:

The materialism of the past century was predominantly mechanistic, because at that time . . . only the science of mechanics . . . had reached any sort of completion. . . . For the materialists of the eighteenth century, man was a machine. This exclusive application of the standards of mechanics to processes of a chemical and organic nature – in which the laws of mechanics are also valid, but are pushed into the background by other, higher laws – constitutes the specific (and at that time, inevitable) limitation of classical French materialism.<sup>25</sup>

and stated in very similar terms more recently, in an article on Diderot and D'Alembert's *Encyclopédie*:

the strongest, most pronounced characteristic of the metaphysics we find in the materialism of the 'encyclopédistes', is the reduction of all forms of the motion of matter to mechanical motion, and of all changes in the universe to the merely 'local changes' of a permanently self-identical and unchangeable matter. It is a mechanistic materialism.<sup>26</sup>

Whether in Engels' comment or in the narrower statement about the *encyclopédistes*, we are being told precisely what we would find in any history of philosophy textbook: materialism is predominantly 'mechanistic', i.e. a kind of outgrowth of Cartesian mechanism, minus the substance metaphysics which undergirds it. This purported 'mechanistic materialism' is obviously shown to exist in titles such as La Mettrie's *L'Homme-Machine* (*Man a Machine*, 1748), which curiously no one seems to read carefully enough to notice that it never suggests that organic, animate bodies should be 'reduced to' or 'explained in terms' of inorganic, inanimate matter and its purportedly basic properties. But here it is not just a historical error or imprecision at issue; there is a more deeply-rooted philosophical presupposition (perhaps an 'intuition'?) that materialism necessarily explains the mental, the higher, the complex in terms of the physical, the lower, the basic.

One is reminded of the amusing anti-materialist thought-experiment conducted by the French philosopher Raymond Ruyer in a 1933 article. He suggests that the reader imagine a law court as seen through the eyes of a materialist. "The halo of meanings, essences and values," in other words, everything relevant about the scene, vanishes, and what is left is the

<sup>23</sup> Boyle (1661/1999), p. 221.

<sup>24</sup> Bacon (1620/2004), I, § 124.

<sup>25</sup> Engels (1888/1962), p. 278 (translation mine); in English in Marx & Engels (1959), p. 211.

<sup>26</sup> Vassails (1951), p. 315, referring to the article "MOUVEMENT" (to which one can add the article "MATIÈRE").



“functioning of a sort of complicated mechanics” whereby brains produce articulations, which in turn generate vibrations in the air, and thereby modify other nervous systems.<sup>27</sup> Everything takes place in the present, which is made up of strictly quantifiable events; psychological or social reality is an emanation which can always be reduced to physical processes. Basically, in this digest of Husserl, Ruyer has already formulated the core of Putnam and Fodor’s ideas of the 1970s: materialism is a strange kind of reductionism which denies the reality of social institutions, values, and of course minds. Mental life is not to be approached with the conceptual tools that might be appropriate for physical objects. It is curious that both dialectical materialists of the old-fashioned kind (including, for present purposes, Sartre in “Materialism and Revolution”<sup>28</sup>) and spiritualist thinkers such as Ruyer give such an identical portrait of materialism as a historical episode.

In fact the main explanatory target of early modern materialism is biological reality. The materialist project is inseparably linked to the project of natural history, which was the most common name for the cluster of activities termed ‘biology’ by 1800. The philosophical context of this project is familiar from figures such as Hume, La Mettrie and d’Holbach, who “naturalize” domains such as religion, the soul, or the “human heart”<sup>29</sup>; even Locke described the project of his *Essay* as a “History of the first beginnings of human knowledge.”<sup>30</sup> The “historical, plain method” he announces at the beginning of the *Essay* (p. 44) is a way of naturalizing a theological *topos*. In case it’s not obvious to us that natural history was a reductionist project, consider this passage from Nicolas Linguet, a conservative pamphleteer of the 1760s who was also the author of *Le Fanatisme des Philosophes* (1764). Linguet regrets that “a taste for natural history has become quite common. Rich countries are filled with cabinets. . . . Look at this spectacle of Nature dead and dissected . . .”<sup>31</sup> As is often the case, it helps to listen to the reactionaries, for Linguet correctly perceives that natural history or proto-biology is a strongly polemical project in the mid-eighteenth century.

One need only think of Diderot – specifically two passages in very different works, both devoted to the then-brand new theory of biological epigenesis (according to which life, in paradigmatic forms such as the embryo, emerges out of the adjunction of successive layers of material substance, not through the superaddition of any ‘spirit’, ‘soul’ or preexisting ‘form’): (a) the *Rêve de D’Alembert*’s famous “voyez-vous cet œuf ?” and (b) the definition of “modern Spinosists” in the *Encyclopédie*:

(a)

Do you see this egg? With this you can overthrow all the schools of theology, all the churches of the world. What is this egg? An unsensing mass, prior to the introduction of the seed [*germe*]; and after the seed has been introduced, what is it then? Still an unsensing mass, for the seed itself is merely an inert, crude fluid. How will this mass develop into a different

<sup>27</sup> Ruyer (1933), p. 28.

<sup>28</sup> Sartre (1946/1990) reproaches materialism for eliminating “subjectivity,” “the human outlook” from the universe (pp. 85, 99); with its “chains of blind causality” (pp. 86, 120), it is no better than Taylorism, which reduces human action to a series of mechanically specifiable performances (pp. 127–128).

<sup>29</sup> d’Holbach (1999), I, xi, p. 292. The title of Diderot’s late, unfinished work, *Éléments de physiologie*, appears to have been provisional (and taken from Albrecht von Haller); according to his friend and biographer Naigeon, the work, if completed, would have been entitled *Histoire naturelle et expérimentale de l’homme* (Dieckmann [1951], p. 186).

<sup>30</sup> Locke (1975), II.xi.15.

<sup>31</sup> Linguet, *Annales politiques, civiles, et littéraires du XVIII<sup>e</sup> siècle* (1777), quoted in Metzger (1987), p. 247, n. 4.

[level of] organisation, to sensitivity and life? By means of heat. And what will produce the heat? Motion.<sup>32</sup>

and

(b)

Spinosist: follower of the philosophy of Spinoza. One must not confuse the ancient Spinosists with the modern Spinosists. The general principle of the latter is that matter is sensitive; they demonstrate this by the development of the egg, an inert body which by the sole means [*instrument*] of graduated heat moves to the state of a sensing, living being, and by the growth of any animal which in its inception [*principe*] is merely a point, and through the nutritive assimilation of plants and – in one word – of all substances that serve the purpose of nutrition, becomes a great sensing and living body in a greater [expanse of] space. From this they conclude that only matter exists, and that it is sufficient to explain everything. For the rest, they follow ancient Spinosism in all of its consequences.<sup>33</sup>

Briefly put, Diderot in the first text states the implications of the new biological theory, and in the second text attributes this new theory to those he calls, intriguingly ‘modern Spinosists’. He distinguishes between ‘ancient Spinosists’, who are substance monists and metaphysicians overall, and ‘modern Spinosists’, for whom the key phenomenon is biological epigenesis, and who assert that matter is fundamentally *living* matter. In addition, Diderot thinks mechanistic science is over and done with, a thing of the past, a completed cycle:

We are on the verge of a great revolution in the sciences. Given the taste people seem to have for morals, *belles-lettres*, the history of nature and experimental physics, I dare say that before a hundred years, there will not be more than three great geometricians remaining in Europe. The science will stop short where the Bernoullis, the Eulers, the Maupertuis, the Clairaut, the Fontaines and the D’Alemberts will have left. . . . We will not go beyond.<sup>34</sup>

Diderot is opposing the new ‘taste’ and interest for a set of preoccupations including two forms of ‘life science’ (natural history and ‘experimental physics’) to the traditional prestige of mathematical science. And he is squarely locating his materialist preoccupations, as we saw in the earlier quotations, within the former.

Indeed, materialism is so far from being mechanistic that it borders on the vitalistic ... (and the same contrarian view or treatment can be applied to vitalism itself in this period, which turns out not to be a metaphysics of vital forces, but a heuristic, explanatory vitalism seeking to model complex phenomena to arrive at laws or at least regularities of organic life<sup>35</sup>). Key concepts such as *organisation* and *économie animale*, which are used to describe organic functions and structural integrity in ways which are not strictly or completely mechanistic, are explicitly devised in contradistinction to mechanistic explanations of vital processes; even a work with a title like *L’Homme-Machine* never reduces the living body to inorganic mechanical models.<sup>36</sup> In this one can speak of a ‘vital materialism’, with the proviso that this becomes more the norm than the exception (i.e., it is not that most forms of materialism are mechanistic and then exceptionally a Diderot or a La Mettrie articulate a uniquely ‘vital’ materialism; one can also think back to Lucretius’ *semina rerum* and their revival with Gassendi).

<sup>32</sup> *Rêve de D’Alembert*, in Diderot (1994), p. 618; cf. pp. 706-707.

<sup>33</sup> s.v. “Spinosistes,” *Encyclopédie* XV, 474 / Diderot (1994), p. 484.

<sup>34</sup> Diderot, *Pensées sur l’interprétation de la nature* § 4, in Diderot (1994), p. 561.

<sup>35</sup> See Kaitaro (2008), Wolfe and Terada (2008).

<sup>36</sup> See Wolfe (forthcoming 2010).

Vital materialism gets rediscovered every few years, especially in Anglophone history of ideas which tends to have a marked culturalist emphasis and an equally marked lack of concern with the history of philosophy. The most recent work to present a ‘vitalized’ version of materialism as a novelty is Peter Hans Reill’s *Vitalizing Nature in the Enlightenment*; some years earlier, it was Timothy Lenoir’s *Strategy of Life*.<sup>37</sup> In fact, talk of vital materialism goes at least far back as the 1960s, with Jean Wahl or Maurice Got. Wahl describes Diderot as a “vitalist materialist” and the Leibnizian philosopher of nature Jean-Baptiste Robinet as a “materialist vitalist”; Got speaks of the “received opinion” according to which “materialism and mechanism are identical,” and declares that all writings of the period, notably those of Diderot, contradict this opinion.<sup>38</sup>

At which point can one speak of vital materialism as a set of claims which is differentiated from other natural-philosophical positions? A safe initial boundary marker would with the seventeenth-century English physician Francis Glisson and the eighteenth-century Swiss physiologist Albrecht von Haller, who both contributed to articulate the idea that organic matter possesses certain essential properties such as irritability and sensitivity;<sup>39</sup> an additional characteristic of vital materialism is, of course, a marked shift in the concept of *matter itself*, from a Cartesian/Galilean/Newtonian understanding<sup>40</sup> to an ‘animate’ vision which one finds notably in John Toland’s *Letters to Serena* (1704), in which the strong distinction between matter and motion is rejected. The fifth letter is explicitly entitled *Motion essential to Matter*,<sup>41</sup> and in it Toland states that “All the Matter in Nature, every Part and Parcel of it, has bin ever in motion, and can never be otherwise” (Toland [1704/1976, ] p. 167), and “there’s but one sort of Matter in the Universe” (*ibid.*, p. 174), in a ceaseless process of transformation: “All the Parts of the Universe are in this constant Motion of destroying and begetting, of begetting and destroying” (*ibid.*, p. 188). Matter is not just in some sort of ‘intestine’ motion (Toland speaks later on of its “autokinesy”), it is also fundamentally, inherently *active*: “Activity ought to enter into the Definition of Matter, it ought likewise to express the Essence thereof” (*ibid.*, p. 165). Toland assures the reader that it is the all-powerful God himself who, in his perfection, created matter as active (and not merely extended) (*ibid.*, pp. 234-235).

This vital materialism is thus not just a mid- to late eighteenth century ‘French materialist’ phenomenon; while it’s true that Diderot’s masterpiece *Le Rêve de D’Alembert* (*D’Alembert’s Dream*) features a vitalist physician, Bordeu, as its ‘hero’, various other texts such as the works of the Francis Glisson, Toland as seen above, the anonymous clandestine manuscript *L’âme matérielle*, etc., show this trend, in other countries and in the seventeenth century.

What does it change about the picture of doctrines? Consider what we would today call theory reduction and physicalism. These are both standard traits of any form of materialism in the twentieth (or twenty-first) century. Materialism in this sense is a reductionist theory (or

<sup>37</sup> Reill (2005); Lenoir (1982). An original insight of Reill’s is that this ‘vitalized’ vision of the Enlightenment should not be confused with the *Naturphilosophie* tradition, indeed is opposed to it (Reill [2005], pp. 14, 200, 235), notably because there is no ontological claim made for the existence of unique, irreducible vital forces in the former.

<sup>38</sup> Wahl (1962), pp. 53, 54; Got (1962), p. 137.

<sup>39</sup> Giglioni (2008).

<sup>40</sup> Obviously these are different understandings, particularly if one considers the Cartesian definition of matter as extension versus the Newtonian integration of the concept of force; but – if we disregard very complex debates on whether Newton might have considered gravity to be a property of matter, something he denies explicitly – they share an unwillingness to make matter itself be the bearer of complex additional properties such as motion, sensation and ultimately thought.

<sup>41</sup> Toland (1704/1976), p. 163f.

meta-theory) in which higher-level claims, notably psychological, are reduced to lower-level entities and/or theories – notably, or even exclusively physical. In contrast, what we find in the ‘vital materialism’ discussed here is a kind of reductionism without physics. Not only is there historically no physics to reduce a higher-level theory to, but recall Diderot’s rather unusual attitude as expressed above: the mathematical sciences are complete, now we move on to the life sciences. Another interesting effect of this kind of materialism is to generate a concept of ‘material soul’ (as in the title of the anonymous clandestine treatise from 1700, *L’âme matérielle*), in other words a proto-psychology.

### 3. Conclusion

It is a bit disappointing for major categories in the interpretation of early modern thought (or, for some, of philosophy *tout court*) to be dispensed with in favour of a situation in which the interpreter simply says ‘it’s complicated’; should we then only speak of Socinians, Hobbists, neo-Stahlians or analogical Newtonians? (All of which are legitimate categories that distinguish different strands of early modern radical thought, within ‘empiricism’ and ‘materialism’; hence Locke or Spinoza might profitably be thought of as belonging to Socinian debates; Diderot’s theory of matter and life is heavily influenced by Georg-Ernest Stahl; Hartley has a ‘Newtonian’, but analogically Newtonian model of the nervous system; etc.) So I shall not conclude merely by recommending the denial of the old historiography; rather, I think it makes sense to speak of Locke *as an empiricist* or Diderot *as a materialist*, on the condition that we take care to not use nineteenth- or early twentieth-century definitions as if they were Gospel truth. To understand in what way Locke was an empiricist or La Mettrie a materialist is not to cease to understand them philosophically!<sup>42</sup>

What does it mean to think of empiricism and materialism differently, if it is not just a fragmentation of categories? One modification would be that they not be considered as rough drafts of a completed doctrine that came into its own in the twentieth century; they are not ‘on the way’, *unterwegs* to Kant or Russell. This is not just a plea for the significance of intellectual history, because it makes a *philosophical* difference: for instance when we cease to view Locke or Hume’s projects as ‘epistemology’ in the restrictive sense. In fact thinkers before Kant do not speak of ‘objectivity’ but rather of ‘impartiality’<sup>43</sup>; they do not separate ethical matters and epistemological matters as we would now. Rather,

(i) empiricism is a morally motivated program, and somewhat constructivist in its ‘epistemology’ – hence its engendering of Hume, which otherwise makes very little sense; in addition, as Michael Ayers observed, it is “notoriously weak in its philosophy of experiment”<sup>44</sup>;

(ii) far from being mechanistic, materialism needs to be understood in much more ‘vital’ terms.<sup>45</sup> In case this claim seems non-controversial, consider the recent, presumably representative reference work, the *Oxford Companion to the History of Modern Science*, which contains an article entitled “Materialism and vitalism,” in which the two are opposed: “Materialists make the ultimate principles matter and motion; vitalists, the soul or an irreducible life force.”<sup>46</sup>

<sup>42</sup>Yet the revisionist view of certain key early modern philosophical ‘positions’ or ‘constellations of ideas’ suggested here goes a lot further than some recent proposals for revising ‘analytic history of philosophy’ (namely, Sorell & Rogers, eds. (2005)), without however insisting on pure ‘contextualism’.

<sup>43</sup>Thanks to Dario Perinetti (UQAM, Montréal) for pointing this out to me. See also Gaukroger (2005).

<sup>44</sup>Ayers (1991), vol. 2, p. 159.

<sup>45</sup>This is not true of Hobbes or Hartley. However, in the British context it is true of the group of materialist physicians known as the ‘mortalists’, in the late 17<sup>th</sup> and early 18<sup>th</sup> centuries. See Thomson (2000) and (2008).

<sup>46</sup>Wellman (2003); see Kaitaro (2008).

To put it differently, Locke is not interested in the physical basis of ideas; similarly, Hume's science of human nature is a *moral science* in which passions are the 'simples' or 'primitives', the building-blocks, which do not reduce to anything further (that would be the anatomist's job, Hume says), and his epistemology is significantly derived from his moral theory.<sup>47</sup> Second, this kind of non-reducibility also appears in Diderot's biologically driven materialism, which does not reduce to physics. The same could be shown for early modern determinism (i.e. that it is not Laplacian, focusing on calculability and predictability, but action-centred and embodied).<sup>48</sup>

A question I leave open is whether the revisionist/contrarian view presented here severs the link between empiricism and materialism – for the 'moral', non-epistemological foundation of empiricism seems to put it on a different track than our linkage of it to materialism, and the emphasis on the 'vital' dimension of materialism would tend to link it to a tradition including Van Helmont, Glisson and Leibniz rather than that of, say, Hobbes. Regardless, I hope to have illustrated both a general claim that certain characteristics of philosophical positions require some historical attention to be made sense of in their own internal terms, and a specific claim concerning the status of empiricism and materialism, with consequences also for our understanding of the relation between philosophy and science in the early modern and Enlightenment periods.

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<sup>47</sup> For the latter view see Baier, Falkenstein, Norton, Perinetti (variously).

<sup>48</sup> Wolfe (2006), (2007).



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